REMARKS/ARGUMENTS

Reconsideration of the application is requested.

Claims 1-6 and 8-14 remain in the application. Claim 7 has been cancelled.

In the second paragraph on page 2 of the above-mentioned Office action, claims 1-2, 5-6, 8, 10-11, and 13 have been rejected as being unpatentable over Fujihira (US Pat. No. 6,097,063) together with Letavic et al. (US Pat. No. 6,221,737 B1) and Assaderaghi et al. (US Pat. No. 6,121,661) under 35 U.S.C. § 103(a).

As will be explained below, it is believed that the claims were patentable over the cited art in their original form and the claims have, therefore, not been amended to overcome the references.

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful.

Claim 1 calls for, inter alia:

> an insulation layer on said semiconductor substrate, said insulating layer having a thickness of between 50 nm and 200 nm;
>
> ...
>
> at least one of said first doped terminal zone and said second doped terminal zone directly adjoining said semiconductor substrate. (Emphasis added.)

Fujihira describes a SOI component with source and drain zones 8, 9, which form the first and second terminal zones in the sense of the invention of the instant application, and with a drift zone 1. These semiconductor zones are disposed above an insulation layer 6, which is disposed on a semiconductor substrate 5 (see Figs. 6A-6C). The SOI component as shown in Figs. 6A-6C of Fujihira should have a breakdown voltage of 100 V (see column 12, line 4).

Fujihira does not disclose how thick the insulation layer 6 should be in order to reach such a breakdown voltage. However, a person skilled in the art would know that the thickness of the insulation layer in the SOI component of Fujihira must be clearly more than 200 nm in order to reach a breakdown voltage of 100 V.

Applicants enclose herewith a publication Schwalke et al ("Ultra-Thick Gate Oxides: Charge Generation and Its Impact on Reliability," presented at the 10th WODIM, Munich, November 13-

15, 2000) for the Examiner's reference. The chart on page 12 of this document shows the critical electric field strength of the semiconductor oxide layer depending on its thickness. The curve shows the critical electric field strength only up to an oxide thickness of 140 nm. However, this curve, which is approximately linear in this area, can be simply interpolated up to an oxide thickness of up to 200 nm. A critical electric field strength E_{crit} = 6 MV/cm at an oxide thickness of 200 nm can then be obtained. This means that an oxide layer with a thickness d = 200 nm will be destroyed by an electric field with a field strength E_{crit} = 6 MV/cm. This kind of field strength E_{crit} = 6 MV/cm corresponds to a voltage of U_{crit} = E_{crit}.d = 120 V. Since electronic components must be constructed to avoid the occurrence of the critical operating condition during the normal operation, safety factors should be considered. Even with a safety factor of 1.5, namely a maximum permitted field strength of 4 MV/cm, the oxide thickness for a breakdown voltage of 110 V is already required to be more than 250 nm (d = U_{crit}/E_{crit} = 100 V/4 MV/cm).

In summary, although Fujihira does not disclose the thickness of the insulation layer 6, it is well known to a person skilled in the art that a breakdown voltage of 100 V requires the thickness of the insulation layer to be more than 250 nm.

Even when a person skilled in the art, with the knowledge of Assaderaghi et al., would provide for a conductive connection between the substrate 5 and the drain zone 9 or the source zone 8 in the component of Fujihira, he or she would have no reason to also reduce the thickness of the insulation layer to a value of between 50 nm and 200 nm. None of the cited references discloses that such an electrically conductive connection between one of the terminal zones and the substrate is suitable to reduce the voltage rating of the insulation layer by application of a voltage between the terminal zones against conventional components, so that the insulation layer can be thinner than those of the conventional power components which do not have such a conductive connection between one of the terminal zones and the substrate.

The thickness of 100 nm to 500 nm disclosed by Assaderaghi et al. and the thickness of 100 nm to 5000 nm disclosed by Letavic et al. do not provide enough of a hint to in fact reduce the thickness of the insulation layer to a value of below 200 nm because, taking into consideration the above detailed explanation and according to the state of knowledge at that time, a person skilled in the art must have come to the conclusion that a thin oxide thickness is not enough to reach the desired breakdown voltage in Fujihira.

In conclusion, it is not obvious for a person skilled in the art, starting from Fujihira, to choose an oxide thickness of between 50 nm and 200 nm and to provide a connection between at least one of the terminal zones and the substrate in order to arrive to the component according to claim 1 of the instant application.

It is accordingly believed to be clear that none of the references, whether taken alone or in any combination, either show or suggest the features of claim 1. Claim 1 is, therefore, believed to be patentable over the art and since all of the dependent claims are ultimately dependent on claim 1, they are believed to be patentable as well.

Applicants acknowledge the Examiner's statement on page 6 of the above-mentioned Office action that claims 3-4, 9, 12, and 14 would be allowable if rewritten to include all of the limitations of the base claim and any intervening claims.

Since claim 1 is believed to be patentable as discussed above and claims 3-4, 9, 12, and 14 are ultimately dependent on claim 1, they are believed to be patentable in dependent form. A rewrite is therefore believed to be unnecessary at this time.

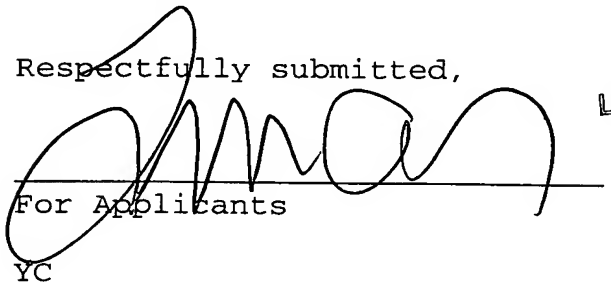
In view of the foregoing, reconsideration and allowance of claims 1-6 and 8-14 are solicited.

In the event the Examiner should still find any of the claims to be unpatentable, counsel would appreciate a telephone call so that, if possible, patentable language can be worked out.

Petition for extension is herewith made. The extension fee for response within a period of two months pursuant to Section 1.136(a) in the amount of $420.00 in accordance with Section 1.17 is enclosed herewith.

Please charge any other fees which might be due with respect to 37 CFR Sections 1.16 and 1.17 to the Deposit Account of Lerner and Greenberg, P.A., No. 12-1099.

Respectfully submitted,



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